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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------|-------------|----------------------|-----------------------------|------------------------|
| 10/691,272 | 10/21/2003 | Jang Sik Cheon | SUN-0031 | 4945 |
| 7590 CANTOR COLBURN LLP 55 Griffin Road South Bloomfield, CT 06002 | | 05/01/2007 | EXAMINER BODDIE, WILLIAM | |
| | | | ART UNIT 2629 | PAPER NUMBER |
| | | | MAIL DATE 05/01/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/691,272 | CHEON ET AL. | |
| | Examiner | Art Unit | |
| | William L. Boddie | 2629 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 9-12 and 17-28 is/are pending in the application.
 - 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 9-12 and 17-28 is/are rejected.
- 7) Claim(s) 26 is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date ____.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date ____.
- 5) Notice of Informal Patent Application
- 6) Other: ____.

DETAILED ACTION

1. In an amendment dated, February 15th, 2007, the Applicant amended claims 9 and 11-12, cancelled claims 1-8 and 13-16, and added new claims 17-28. Currently claims 9-12, and 17-28 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 9-12 and 17-28 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 26 is objected to because of the following informalities: line 3 of the claim currently states, "lights passing though the light concentrators." This appears to be an inadvertent typo, with the Applicant intending the phrase to read 'lights passing *through* the light concentrators.' Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 23-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Mumford (US 6,377,249).

With respect to claim 23, Mumford discloses, an optical cursor control device (fig. 1) having a worktable (12 in fig. 1) and an optical pointing device (25 in fig. 1) moved on the worktable by an operator, the optical pointing device comprising:

- a case (25 in fig. 20);
- an optical sensor disposed in the case (23 in fig. 1; unnumbered in fig. 20);
- a light guide (15, 7 in fig. 20) disposed at a sidewall of the case (clear from fig. 20), introducing external lights into the case and including a protrusion (7 in fig. 20) outwardly protruded from the case, the light guide accepting lights reflecting from the worktable adjacent to the case through the protrusion to irradiate lights penetrating the light guide onto the optical sensor (col. 15, lines 30-38); and

a printed circuit board (clear from fig. 23) with electronic parts (24 in fig. 20) processing an output signal of the optical sensor to generate an output signal that corresponds to a position of the case (col. 7, lines 1-18).

With respect to claim 24, Mumford discloses, the optical cursor control device according to claim 23 (see above), wherein the light guide is a prism (col. 15, lines 30-32).

With respect to claim 25, Mumford discloses, the optical cursor control device according to claim 24 (see above), wherein the prism comprises a first area (7 in fig. 20) that accepts the lights reflecting from the surface of the worktable adjacent to the case and a second surface (104r,g,b in fig. 20) that introduces the lights penetrating the prism onto the optical sensor (clear from fig. 20).

With respect to claim 26, Mumford discloses, the optical cursor control device according to claim 25 (see above), wherein the prism further comprises light concentrators disposed at the first (101 in fig. 10) and second areas (note the convex lens located on the detectors 106 in fig. 10), and the light concentrators increase the intensities of the lights passing through the light concentrators (col. 12, lines 20-22).

With respect to claim 27, Mumford discloses, the optical cursor control device according to claim 26 (see above) wherein the light concentrators are convex lenses (clear from fig. 10).

6. **With respect to claim 28,** Mumford discloses, the optical cursor control device according to claim 23 (see above), further comprising: a switch module (236 in fig. 24) mounted on the printed circuit board; and a button (116 in fig. 20) disposed on a top of the case to turn on or off the switch module.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn (US 6,618,038) in view of Son (US 6,741,234).

With respect to claim 18, Bohn discloses, an optical cursor control device (fig. 1 for example) including a worktable (140 in fig. 7) and an optical pointing device (500) moved on the worktable by an operator, the optical pointing device comprising:

a case (504 in fig. 7);

a light guide (108 in fig. 7) disposed at a sidewall of the case (clear from fig. 7), introducing external lights into the case and including a protrusion outwardly protruded from the case (col. 4, lines 59-60), the light guide directly accepting the external lights through the protrusion to obliquely irradiate lights penetrating the light guide (note the ray traces in fig. 7) onto a surface of the worktable through an opening (507 in fig. 7) formed in a lower panel of the case (506 in fig. 7);

an optical sensor (511 in fig. 7) disposed in the case and over the opening to detect lights reflecting from the surface of the worktable (clear from fig. 7).

While Bohn's invention is aimed to providing illumination out of the case, it is seen as inherent that external light incident on the lenses of Bohn would satisfy the limitations of the claims as currently written.

Bohn does not expressly disclose, a printed circuit board.

Son discloses, an optical pointing device (fig. 7) comprising; a printed circuit board (23 in fig. 7) with electronic parts (27 in fig. 7) processing an output signal of an optical sensor (25, 27 in fig. 7) to generate an output signal that corresponds to a position of the case (note the output wiring in fig. 7).

Bohn and Son are analogous art because they are from the same field of endeavor namely, optical cursor control devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the printed circuit bard of Son in the cursor control device of Bohn.

The motivation for doing so would have been to provide support for additional structures in the cursor control device (Son; col. 3, lines 41-43).

With respect to claim 21, Son and Bohn expressly disclose, the optical cursor control device according to claim 18 (see above).

Bohn further discloses, comprising a light emitting device (520 in fig. 7) installed in the case, wherein the light emitting device is automatically or manually turned on (col. 9, lines 46-50; for example) and the lights from the light emitting device are irradiated onto the surface of the work table through the opening (clear from fig. 7).

With respect to claim 22, Son and Bohn expressly disclose, the optical cursor control device according to claim 18 (see above).

Son further discloses, a switch module (22 in fig. 7) mounted on the printed circuit board (23 in fig. 7); and a button (21 in fig. 7) disposed on a top of the case to turn on or turn off the switch module (clear from fig. 7).

Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn (US 6,618,038) in view of Son (US 6,741,234) and further in view of Hines (US 6,111,563).

With respect to claim 19, Son and Bohn expressly disclose, the optical cursor control device according to claim 18 (see above).

Bohn further discloses, irradiating the lights penetrating the protrusion onto the surface of the worktable (note the ray traces from 108 in fig. 7).

Neither Son nor Bohn expressly disclose, wherein the light guide includes a light concentrating surface and an illuminating surface.

Hines discloses, an optical cursor control device (fig. 5), wherein a light guide (22 in fig. 5) includes a light concentrating surface (outer surface of lens 22) located at a protrusion to directly accept external lights (note the rays in fig. 5) and an illuminating surface (inner surface of lens 22) located opposite the protrusion (col. 3, lines 58-67).

Hines, Son and Bohn are analogous art because they are all from the same field of endeavor namely, optical cursor control devices.

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the lens of the Son and Bohn device with those taught by Hines.

The motivation for doing so would have been their optically wide angle of ray transmission (Hines; col. 7, lines 46-55).

With respect to claim 20, Hines, Son and Bohn expressly disclose, the optical cursor control device according to claim 19 (see above).

Hines further discloses, wherein the illuminating surface has an area smaller than that of the light concentrating surface (clear from fig. 5, that the inner rays of Hines are found on a much smaller surface area than those on the outside of the housing).

8. Claims 9-10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perret, Jr. et al. (US 5,736,686) in view of Rai et al. (US 6,369,866).

With respect to claim 9, Perret, Jr. discloses, an optical cursor control device (graphic digitizing tablet) having a light concentrating pad (fig. 1) and an optical pointing device moved on the light concentrating pad by an operator (col. 1, lines 14-19), the light concentrating pad comprising:

an optical wave guide (14 in fig. 1);

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a lower reflecting plate (15 in fig. 1; col. 3, line 63) attached to a bottom of the optical wave guide for upwardly reflecting light introduced into the optical wave guide; and

an upper transparent plate (49, 56 in fig. 1) attached to a top of the optical wave guide for passing the light reflected from the lower reflecting plate.

side reflecting plates (52 in fig. 1) attached to a portion of sides of the optical wave guide for reflecting the light in the optical wave guide (col. 5, lines 12-14 discloses that the edge is coated with aluminized mylar thus creating a light concentrating plate (note the rays around 48 in fig. 1)); and

a light concentrating plate (47 in fig. 1), wherein the light concentrating plate reflects external light (58, 40 in fig. 1) into the optical wave guide through another portion of the sides of the optical wave guide (col. 14, lines 24-30; clear from fig. 1).

Perret, Jr. does not expressly disclose that the light concentrating plate is attached to an edge of the lower reflecting plate and separated from the upper transparent plate.

Rai discloses a backlight lighting apparatus (fig. 6; for example) comprising, a light concentrating plate (44 in fig. 6) attached to an edge of a lower reflecting plate (40 in fig. 6) and separated from an upper transparent plate (10 in fig. 6), wherein the light concentrating plate reflects external light into an optical wave guide (20 in fig. 6; clear from fig. 6; col. 6, lines 6-29).

Rai and Perret, Jr. are analogous art because they are both from the same field of endeavor namely backlighting systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to attach the light concentrating plate of Perret, Jr. to an edge of the lower reflecting plate and separate from the upper transparent plate as taught by Rai.

The motivation for doing so would have been to achieve uniform brightness, prevent light leakage, decrease the dimensions of the case (Rai; col. 6, lines 37-39), and most importantly decrease power consumption by a significant amount (Rai; col. 1, lines 25-29).

With respect to claim 10, Rai and Perret, Jr. disclose, the optical cursor control device according to claim 9 (see above).

Perret, Jr. further discloses, wherein the upper transparent plate includes regular patterns drawn on a surface thereof (col. 4, lines 42-46).

With respect to claim 17, Rai and Perret, Jr. disclose, the optical cursor control device according to claim 9 (see above).

Perret, Jr. further discloses, a light source (16 in fig. 1) emitting a light toward the light concentrating plate, wherein the light concentrating plate reflects the light from the light source into the optical wave guide (clear from fig. 1).

It should be noted that Rai also discloses a light source (50 in fig. 6; and ambient light sources in fig. 6), which are reflected by the light concentrating plate.

9. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perret, Jr. et al. (US 5,736,686) in view of Rai et al. (US 6,369,866) and further in view of Lyon (US 4,521,772).

With respect to claim 11, Rai and Perret, Jr. disclose, the optical cursor control device according to claim 9 (see above).

Neither Rai nor Perret, Jr. expressly disclose further detail regarding the optical pointing device.

Lyon discloses, an optical pointing device comprises;
a case (108 in fig. 22) including a lower panel, the lower panel having an opening (clear from fig. 22);
an optical sensor (120 in fig. 22) mounted inside the case for sensing reflected light introduced into the case through the opening (fig. 22); and
a printed circuit board (110 and 112 in fig. 22) for processing a signal outputted from the optical sensor to generate an output signal that corresponds to a position of the case.

Lyon, Rai and Perret, Jr. are analogous art because they are all from the same field of endeavor namely, backlight control systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to construct the optical pointing device of Rai and Perret, Jr. as taught by Lyon.

The motivation for doing so would have been due to its high reliability over long periods of time (Lyon; col. 2, lines 20-24).

With respect to claim 12, Lyon, Rai and Perret, Jr. disclose, the optical cursor control device according to claim 11 (see above).

Lyon further discloses, wherein the optical pointing device further comprises:

a switch module disposed on the printed circuit board (114, 115 in fig. 22); and

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a button disposed at the top surface of the case to turn on or off the switch module (116 in fig. 22).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kim et al. (US 6,929,392) discloses, a backlight assembly. See figure 9.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Wlb
4/17/07

Sumati Lefkowitz
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